

1 CLAIMS:

What is claimed is:

1. A communication system including a differential signal
5 transmitter, the transmitter comprising:

a multiplicity of signal component output circuits, each
signal component output circuit operable in a first mode sensitive
to a first metric and a second mode sensitive to a second metric;
and

10 a selection circuit, the selection circuit asserting
control signals adaptively configuring each signal component
output circuit to operate in either the first mode or the second
mode.

15 2. The communication system according to claim 1, wherein
the transmitter includes an output DAC, the output DAC further
including a DAC decoder circuit, the decoder circuit receiving
input digital signals and outputting a control word to the signal
component output circuits, wherein the control word is the same
20 for both the first and second modes.

3. The communication system according to claim 2, the
selection circuit further comprising:

a first logic circuit connected to receive the control
25 word, the first logic circuit asserting control signals which
operate a corresponding signal component output circuit in the
first mode; and

a second logic circuit connected to receive the control
word, the second logic circuit asserting control signals which
30 operate a corresponding signal component output circuit in the
second mode.

4. The communication system according to claim 3, each
signal component output circuit contributing a particular signal
35 quantum to a differential output signal, a maximal value of the

1 sum of said quanta determined by a particular transmission
standard, the maximal value defined by a corresponding number of
signal component output circuits, wherein the control word
adaptively disables a set of signal component output circuits so
5 as to limit the maximal value of the sum of the signal quanta
contributed by the remaining signal component output circuits to
a value determined by a second transmission standard.

5. The communication system according to claim 4, wherein
10 the first metric corresponds to radiative emissions and wherein
the second metric corresponds to power consumption.

6. The communication system according to claim 5, wherein
each signal component output circuit comprises a differential
15 current mode driver cell, the first mode comprising a Class-A
constant common-mode current, the second mode comprising a Class-B
variable common-mode current.

7. The communication system according to claim 6, wherein
20 the control word takes on a same value to both adaptively disable
a set of signal component output circuits and to control operation
of the same set of signal component output circuits with respect
to the first or second modes.

25 8. A communication system including a differential signal
transmitter, the transmitter comprising:

a multiplicity of signal component output circuits, each
signal component output circuit contributing a particular signal
quantum to a differential output signal, a maximal value of the
30 sum of said quanta determined by a particular transmission
standard, the maximal value defined by a corresponding number of
signal component output circuits; and

a selection circuit, the selection circuit asserting
control signals to each of said signal component output circuits,
35 wherein the control signals adaptively disable a set of signal

1 component output circuits so as to limit the maximal value of the sum of the signal quanta contributed by the remaining signal component output circuits to a value determined by a second transmission standard.

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9. The communication system according to claim 8, wherein the multiplicity of signal component output circuits are operable in a first mode sensitive to a first metric and a second mode sensitive to a second metric, the transmitter further comprising 10 a selection circuit, the selection circuit asserting control signals adaptively configuring each signal component output circuit to operate in either the first mode or the second mode.

10. The communication system according to claim 9, wherein 15 the transmitter includes an output DAC, the output DAC further including a DAC decoder circuit, the decoder circuit receiving input digital signals and outputting a control word to the signal component output circuits, wherein the control word is the same for both the first and second modes.

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11. The communication system according to claim 10, the selection circuit further comprising:

a first logic circuit connected to receive the control word, the first logic circuit asserting control signals which 25 operate a corresponding signal component output circuit in the first mode; and

a second logic circuit connected to receive the control word, the second logic circuit asserting control signals which operate a corresponding signal component output circuit in the 30 second mode.

12. The communication system according to claim 11, wherein the first metric corresponds to radiative emissions and wherein the second metric corresponds to power consumption.

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1 13. The communication system according to claim 12, wherein
each signal component output circuit comprises a differential
current mode driver cell, the first mode comprising a Class-A
constant common-mode current, the second mode comprising a Class-B
5 variable common-mode current.

14. The communication system according to claim 13, wherein
the control word takes on a same value to both adaptively disable
a set of signal component output circuits and to control operation
10 of the same set of signal component output circuits with respect
to the first or second modes.

15. The communication system according to claim 14, wherein
the transmitter includes an output DAC, the output DAC further
15 including a DAC decoder circuit, the decoder circuit receiving
input digital signals and outputting a control word to the signal
component output circuits.

16. The communication system according to claim 15, each
20 differential current mode driver cell comprising:

 first and second current sources, each conducting an
equal quanta of current;

 first and second differential pairs, each pair coupled
to a respective current source;

25 a pair of differential outputs, a first output connected
to a first transistor comprising each of the differential pairs,
a second output connected to a second transistor comprising each
of the differential pairs; and

 30 four control signal inputs, each input controlling to a
respective one of the transistors comprising the first and second
differential pairs.

17. A communication system including a differential signal
transmitter, the transmitter comprising:

1 a DAC decoder circuit, the DAC decoder circuit
outputting DAC control words corresponding to digital input
signals;;

2 a differential current mode driver cell array;

5 a selection circuit, the selection circuit asserting
control signals in operative response to DAC control words, the
selection circuit placing individual cells of the current driver
cell array into a first operational mode sensitive to a first
metric or into a second operational mode sensitive to a second
10 metric in response to a select signal.

18. The communication system according to claim 17, wherein
the first metric corresponds to radiative emissions and wherein
the second metric corresponds to power consumption.

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19. The communication system according to claim 18, each
differential current mode driver cell comprising:

first and second current sources, each conducting an
equal quanta of current;

20 first and second differential pairs, each pair coupled
to a respective current source;

a pair of differential outputs, a first output connected
to a first transistor comprising each of the differential pairs,
a second output connected to a second transistor comprising each
25 of the differential pairs; and

four control signal inputs, each input controlling to a
respective one of the transistors comprising the first and second
differential pairs.

30 20. The communication system according to claim 19, further
comprising:

a first logic circuit connected to receive the DAC
control word, the first logic circuit asserting control signals
which operate a corresponding signal component output circuit in
35 the first mode; and

1 a second logic circuit connected to receive the control word, the second logic circuit asserting control signals which operate a corresponding signal component output circuit in the second mode.

5 21. The communication system according to claim 20, each differential current mode driver cell comprising:

 first and second current sources, each conducting an equal quanta of current;

10 first and second differential pairs, each pair coupled to a respective current source;

 a pair of differential outputs, a first output connected to a first transistor comprising each of the differential pairs, a second output connected to a second transistor comprising each 15 of the differential pairs; and

 a set of control signal inputs, each input of the set controlling a respective one of the transistors comprising the first and second differential pairs.

20 22. The communication system according to claim 21, the first and second logic circuits each defining control signals in response to a DAC control word, said first and second differential pairs operatively responsive to said control signals to output a differential signal in either the first mode or the second mode.

25 23. The communication system according to claim 22, wherein the DAC control word is the same when the first and second differential pairs output a differential signal in either the first mode or the second mode.

30 24. The communication system according to claim 23, wherein the first mode is a Class-A mode and wherein the second mode is a Class-B mode.

1 25. A communication system including a differential signal
transmitter, the transmitter comprising:
 a multiplicity of signal component output circuits;
 first means for adaptively configuring said signal
5 component output circuits to operate in either a first emissions
sensitive mode or a second power sensitive mode; and
 second means for adaptively configuring said signal
component output circuits to operate in accordance with at least
two transmission standards, wherein said first and second means
10 are implemented in a single integrated circuit.

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